

REFERENCE 7

**Letter, R.P. Hearn to R.J. Teunis
"Sanitary Sewage Treatment Expansion, Facility #779,"
11/21/74**

DATE: November 21, 1974

TO: R. J. Teunis Site Manager, ANL-West

FROM: R. P. Hearn *RPH* Manager, Site Engineering

SUBJECT: Sanitary Sewage Treatment Expansion, Facility #779

I. BACKGROUND

ANL-West is in the process of constructing a third sewage lagoon at the Sanitary Sewage Treatment Facility, #779. This expansion is necessary to accommodate the present and projected site population at the EBR-II area. The third lagoon was designed to be basically identical to the existing No. 1 and 2 lagoons. The third lagoon is approximately 1,300 feet northeast of the EBR-II site drinking water pumps. The water table at the well is approximately 750 feet below the surface of the bottom of the lagoons.

Construction had progressed to the point where the bottom bentonite liner and the dike's plastic liner and riprap had been installed during the week of November 11. The next and final phase of the construction consisted of installing new culverts between all three lagoons to facilitate future transfer from lagoon to lagoon. Half of two of the culverts had been installed in lagoon No. 3 prior to November 11. In order to install the second half of the culverts to lagoon No. 3 and a new culvert between lagoon No. 1 and lagoon No. 2, it was necessary to drain the existing lagoons No. 1 and 2 to a point at least below the new culvert level. Plant Services decided that, since the existing lagoons were to be drained at least to this level, it would be an opportune time to fully drain the existing lagoons to inspect the bentonite liner. Consequently, during the week of November 11 the contents of the existing lagoons were transferred to the new lagoon and sewage from the Lift Station was diverted directly to lagoon No. 3. This transfer operation was closely monitored by Plant Services and Site Engineering personnel to determine whether there was any sign of leakage. The transfer was essentially complete late Friday afternoon, November 15, 1974, at which time Plant Services and Site Engineering personnel again monitored the level and detected no leakage.

II. UNEXPECTED EVENT

Monday morning, November 18, Plant Services reported that lagoon No. 3 was almost empty, most of the water, over a million gallons, disappeared. A large leak was found at the northeast corner of the lagoon, which appeared to be the opening of a fissure in the substrata lava rock. This leak was barricaded by a small coffer dam and sewage continued to be pumped directly from the Lift Station into this lagoon. It is evident there may also be other leaks.

III. RECOVERY ACTION

After damming the fissure, it was necessary to continue diverting sewage to this lagoon in order to allow the Construction Contractor time to complete the culvert installation. Installation of the culverts was pressed and essentially complete by 1600 hours, November 20, except for sealing around the ends. It is planned to complete the sealing of the culverts by 1600 hours, November 21, and place No. 1 and No. 2 lagoons back in normal operation.

A sample of the EBR-II Site drinking water was obtained November 20. The preliminary analysis indicates no bacterial contamination. Daily samples of the drinking water will be obtained for the next several weeks. In addition, an analysis will be made of a sample of liquid from lagoon No. 2 to obtain a rough estimate of the bacteria count of the escaped water.

With the return of the sewage disposal system to normal operation, adequate time should be available to evaluate the damage caused by the leak and recommend remedial action. This investigation will include further inspection of the new lagoon to determine if additional leak points can be found and to determine if the existing bentonite will seal. This will require that the new lagoon bottom be covered with water from a fire hydrant. In the meantime, we plan to request a price from the Construction Contractor for installing a plastic lining in the new lagoon. The plastic liner installation may have to be deferred until warm spring weather, however, if it is decided to proceed with this alternate.

We should point out that some liquid in lagoons No. 1 and 2 would have had to have been diverted to the desert at this time of the year (approximately 1/2 million gallons) if lagoon No. 3 had not been constructed. This drain-off allows for wintertime accumulation since evaporation is essentially reduced to nil.

RHH:jl

cc: C. S. Abrams ✓
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